



FETOMATERNAL OUTCOME OF PATIENTS WITH FEVER DURING TERM PREGNANCY

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ABSTRACT

Introduction: Fever in pregnancy is a common clinical problem globally. The risk to the mother and fetus is significantly increased in pregnancy complicated by infection and fever. Fever is one of the most frequent reasons for emergency consultation during pregnancy and may be associated with significant adverse outcomes, these being maternal (sepsis, organ damages) obstetrical (miscarriage, preterm birth, chorioamnionitis) or fetal (malformations, fetal demise). However, only one study including mainly second and third trimester pregnant women, evaluated causes of acute undifferentiated fever and 25 % of women had no identified cause. **Methodology:** A hospital based analytical cross sectional study was analysed the maternofetal outcome of 50 cases of fever during term pregnancy and the outcome of 50 cases without fever in term pregnancy and it was studied between 2020-2021 at Govt. Mohan Kumaramangalam medical college, Salem. During the study cases were selected with pregnant women at term gestation with or without fever admitted in Labour ward and Antenatal ward of Govt. Mohan Kumaramangalam medical college hospital. The patients recruited for the study underwent Clinical history, General examination, Obstretic examination, CTG and USG Obstretics, fever investigations. In the group 1, Patients of 37weeks completed mothers with fever for more than one day and in the group 2 healthy AN mothers of 37weeks completed gestation were included. **Results:** Fetal outcome will be studied by taking variables-low birth weight, intrauterine growth retardation, preterm delivery, neonatal sepsis and perinatal death. Maternal complications –post operative wound infection, post-partum haemorrhage, pneumonia, septicemia, jaundice, hypoglycemia and other complications of specific fever will be studied. Most common cause of fever in pregnancy was respiratory tract infections. Urinary tract infection was the second common cause. Pregnant women with fever 24% had Hypotension and 56% had Tachycardia. Pregnant women with fever had almost half the delivery with meconium stained significantly. Among 50 delivered fever mothers, 24% cases were Previous LSCS cases, 44% cases went into spontaneous labour, only 32% cases induced. Out of 32% cases induced, 50% cases were delivered vaginally and 50% Cases underwent caeserean sections. So, Fever did not significantly affect labour onset and the mode of delivery. Significantly NICU admission was required among the fever cohorts **Conclusion:** Fever during pregnancy is a common occurrence that can lead to a wide range of issues for both the mother and the foetus and newborn. Because the most prevalent causes of fever are preventable, there has to be a greater emphasis on the importance of being aware of how to avoid such illnesses in order to avoid life-threatening foetomaternal consequences.

KEYWORDS : Meconium Stained Amniotic Fluid, maternal outcome, fetal outcome, Hypotension, Tachycardia, Respiratory distress, NICU, PPH, Sepsis.

INTRODUCTION:

Fever in pregnancy is a common clinical problem globally. The risk to the mother and fetus is significantly increased in pregnancy complicated by infection and fever.¹ Fever is one of the most frequent reasons for emergency consultation during pregnancy and may be associated with significant adverse outcomes, these being maternal (sepsis, organ damages) obstetrical (miscarriage, preterm birth, chorioamnionitis) or fetal (malformations, fetal demise). However, only one study including mainly second and third trimester pregnant women, evaluated causes of acute undifferentiated fever and 25 % of women had no identified cause.²

Fever in pregnant women is defined as a rectal temperature greater than or equal to 38.5°C at rest and in a normal environment.³ However, hyperthermia (temperature between 37.5 and 38.3°C) is a physiological phenomenon resulting from the accumulation of heat in a context of maternal agitation, dehydration, environmental heat, it has no fetal or maternal repercussions. The distinction between hyperthermia and fever is not always easy, any thermal rise during labour must give rise to fears of infection and imposes the necessary preventive and curative measures.⁴

Fever in the mother must be treated as any other serious illness. The effects on pregnancy depend on the extent of temperature elevation, its duration, and the stage of fetal development when it occurs. Mild exposures during the pre-

implantation period and more severe exposures during embryonic and fetal development often result in miscarriage, premature labor, growth restriction, and stillbirth. Fever also causes a wide range of fetal structural and functional defects, with the central nervous system (CNS) being most at risk.^{5,6,7}

Moreover, nearly 12 % (IC95 8.6–16.8) of patients with fever during pregnancy required hospitalization in intensive care unit and it has been shown that bacteremia is complicated by fetal loss in 10 % of cases.^{8,9} There is no recommendation about fever in pregnant women, but usual care for undifferentiated fever is to introduce probabilistic antibiotic against listeria monocytogenes, responsible for overuse of antibiotics. Improving knowledge about etiology and management of fever in pregnant women could modify antibiotics prescription, which can have consequences on public health.¹⁰ The importance of correctly orienting diagnosis and care is underscored by the current COVID-19 epidemic.

Because of maternal pyrexia, various inflammatory mediators as evidenced by umbilical cord blood cytokines is documented in the absence of neonatal sepsis. The underlying Maternal cytokine polymorphism is strongly associated with both intra partum fever & cerebral palsy at term. Some infectious diseases are more severe in pregnancy (e.g. Plasmodium falciparum, Listeria monocytogenes, hepatitis E virus (HEV), herpes simplex virus and influenza).

Increased brain temperature increases oxygen consumption and also lowering the threshold for hypoxic injury. Hypoxic brain injury is increased by hyperthermia in term neonates. Thus we wanted to determine the fetal-maternal impact of fever on full- term pregnancy with the following aim and objectives.

AIM AND OBJECTIVES

Aim:

- To find the maternal complications & fetal outcome of Patients with fever during term pregnancy.

OBJECTIVES:-

- To evaluate the association between fever during the term with the major maternal and fetal complications.
- To Compare the outcome with Normal Ante Natal mothers.

MATERIALS AND METHODS

Study design:

This was a Hospital based Analytical cross sectional study

Study setting:

The present study was carried out in the Department of Obstetrics and Gynecology at Government Mohan Kumaramangalam Medical College and Hospital, Salem.

Study period:

This study was conducted during the period of January 2020 to January 2021 for the period of 13 months.

Sample size:

For this study based on the feasibility, time constraints and due to informed consent. For this study 100 sample was recruited.

Inclusion Criteria-

- Pregnant mothers of 37wks completed gestation with fever for more than one day (Temperature more than 100 f orally).
- Patients giving informed consent.
- Sure of gestational age by dates or early 1st trimester USG.

Exclusion Criteria-

- Patients not giving informed consent
- Gestational Age <37 weeks
- Covid positive mothers
- Any Chronic medical & surgical disorders

And the study participants were divided into two groups one with the exposure of fever and another group is Normal Ante natal mothers as 50-50 equally.

RESULTS

Table 1: Causes for the fever

Causes	Frequency	Percentages
Respiratory tract infection	24	48%
Urinary Tract infection	18	36%
Typhoid	3	6%
Others	5	10%

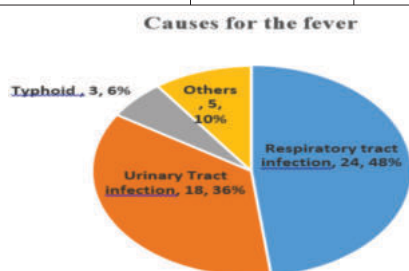


Figure -1 – Causes of the fever

From the above (Table 1, Figure-1). Out of the 50 cases in our study the causes for the fever was, most of them had due to respiratory tract infections 24 (48%), followed by Urinary tract infection 18 (36%), Typhoid 3 (6%) and Others 5 (10%).

Table 2: Frequencies of Vital Measurements

	Fever	Control	Chi Square test
Hypotension	12 (24%)	8 (16%)	P value = 0.4718
Tachycardia	28 (56%)	18 (36%)	

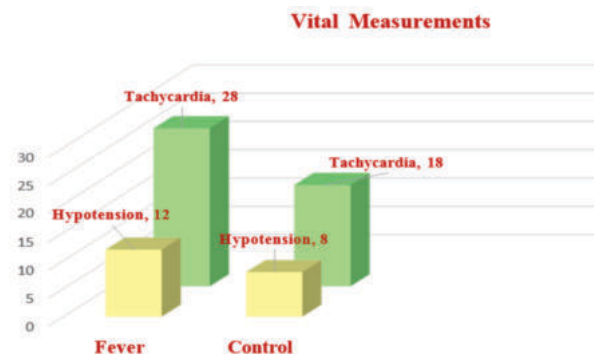


Figure -2 - Frequencies of Vital Measurements

(Table -2, Figure-2) explains the frequencies and percentages of the vital measurements among the 50 pregnant women 12 (24%) had Hypotension and 28 (56%) had Tachycardia. Regarding 50 control, 8 (16%) had hypotension and 18 (36%) had tachycardia. The association is statistically insignificant (p value 0.4718)

Table 3: Relation of IUGR in pregnancy fever

IUGR	Fever	Control	Chi Square test
Present	8 (16%)	3 (6%)	P value = 0.0627
Absent	42 (84%)	47 (94%)	

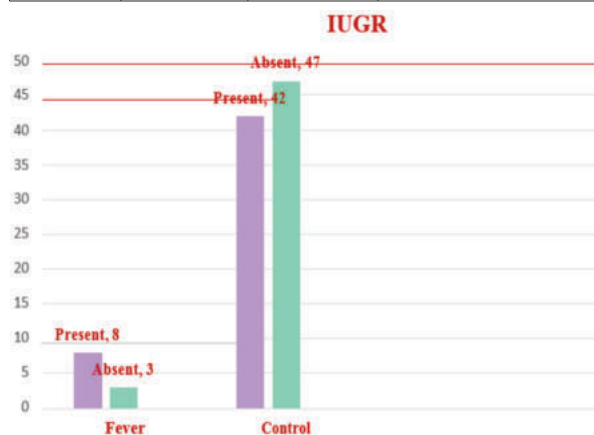


Figure-3 - Relation of IUGR in pregnancy fever

(Table 3, Figure-3) explains the frequencies and percentages of the IUGR among the 50 pregnant women with fever was 8 (16%) had IUGR and in control only 3 (6%) had IUGR.

Among the pregnant women with fever IUGR was slightly higher than the non-fever pregnant women. Though it's statistically insignificant (0.0627).

Table 4: Association between Labour onset with Fever and Control

Labour Onset	Fever	Control	Test of Significance
Spontaneous	22 (44%)	26 (52%)	Degrees of Freedom = 2. p- Value = 0.4342
Induced	16 (32%)	12 (24%)	
Repeat LSCS	12 (24%)	12 (24%)	

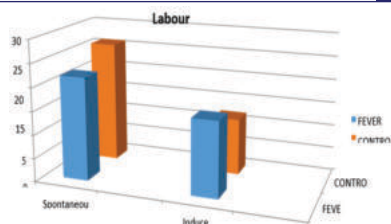


Figure -4 - Association between Labour onset with Fever and Control

(Table 4, Figure-4) explains study of 50 fever cases, 12 (24%) cases were Previous LSCS cases, 22 (44%) cases went into spontaneous labour, only 16 (32%) cases required intervention for the better maternofetal outcome. Out of 16 (8 primigravida, 8 multigravida) cases induced, 8(50%) cases were delivered vaginally and 8(50%) Cases underwent caeserean sections. In other group also, 12(24%) cases were Previous LSCS cases, 26 (52%) cases went into spontaneous labour, 12 cases (24%) cases were induced. Out of 12 (10 primigravida, 2 multigravida) cases induced 10 cases delivered vaginally and 2 cases underwent LSCS. The association was statistically insignificant (p value 0.4342).

Table 5 : Association between Mode of Delivery with fever and control

Mode	Fever	Control	Test of Significance
Labour Natural	14 (28%)	20 (40%)	Chi Square = 1.669
LSCS	33 (66%)	28 (56%)	Degrees of Freedom = 2
Forceps/Instrument assisted	3 (6%)	2 (4%)	p-value = 0.4342

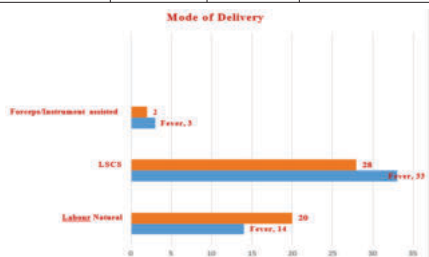


Figure -5- Association between Mode of Delivery with fever and control

(Table 5, Figure-5) explains the association between mode of delivery with pregnant mother with fever and without fever. Among the 50 pregnant women with fever, 14 (28%) had labour natural, 33 (66%) had LSCS and only 3 (6%) had Forceps/Instrument assisted. Regarding 50 control, 20 (40%) had labour natural, 28 (56%) had LSCS and only 2 (4%) had Forceps/Instrument assisted. The association was statistically insignificant (p value 0.4342)

Table 6: Association of Liquor colour and fever

Liquor	Fever	Control	Chi Square test
Clear	25 (50%)	35 (70%)	P value= 0.0412
Meconium stained	25 (50%)	15 (30%)	

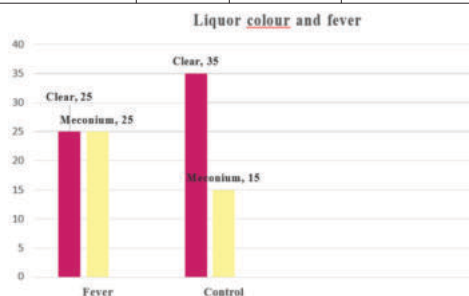


Figure -6 : Association of Liquor colour and fever

(Table 6, Figure- 7) explains the Association of liquor colour with pregnant mother with fever and without fever. Among the 50 pregnant women with fever had 25 (50%) clear Liquor and other half 25 (50%) had Meconium stained liquor. Regarding 50 control, 35 (70%) had clear liquor and 15 (30%) had meconium stained liquor. The association was found to be statistically significant (p value 0.0412)

Table 7: Correlation with Maternal Complications

	Fever	Control	Chi Square test
No Complications	46 (92%)	49 (98%)	P value=
Maternal Complications	4 (8%)	1 (2%)	0.1688

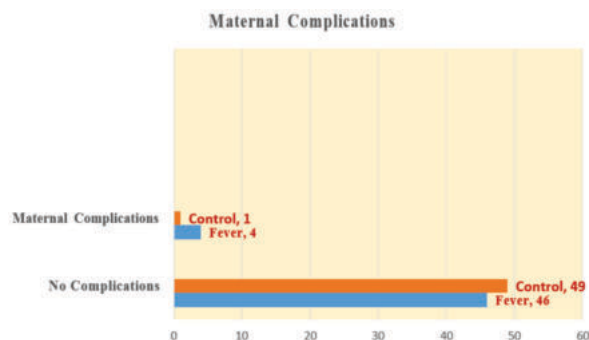


Figure-7: Correlation with Maternal Complications

(Table 7, Figure-7) explains the Correlation of Maternal Complications with pregnant mother with fever and without fever. Among the 50 pregnant women with fever had 4 (8%) had maternal complications such as Postpartum haemorrhage and 46 (92%) majority of them didn't have any complications. Regarding 50 control, 49 (98%) had no complications and only one case had the complication. The association was found statistically insignificant (p value 0.1688)

Table 8 : Relationship of Birth weight with fever in Pregnancy

Weight	Fever	Control	Chi Square test
Normal	35 (70%)	38 (76%)	P value= 0.4992
Low birth weight	15 (30%)	12 (24%)	

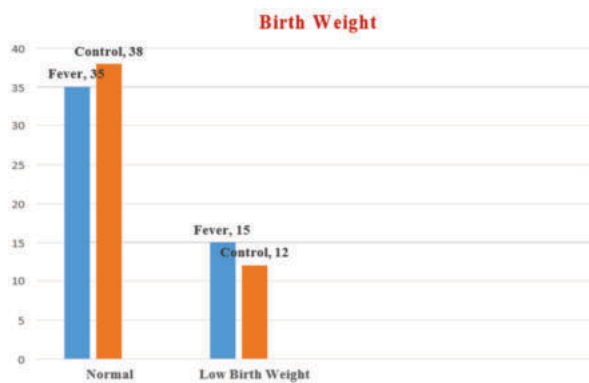


Figure - 8: Relationship of Birth weight with fever in Pregnancy

(Table 8, figure-8), explains the Relationship of Birth weight with pregnant mother with fever and without fever. Among the 50 pregnant women with fever had 35 (70%) had Normal birth weight babies and rest of the 15 (30%) had Low birth weight babies less than 2.5kgs. Regarding 50 control, 38 (76%) had normal delivery and 12 (24%) had low birth weight babies. The association was found statistically insignificant (p value 0.4992)

Table 9: Relationship of APGAR Score with fever in Pregnancy

APGAR Score (Mean)	Fever	Control	P Value
One minute	6.75 ± 0.54	6.98 ± 0.46	0.0240
5 Minute	7.94 ± 0.23	8.06 ± 0.31	0.0302

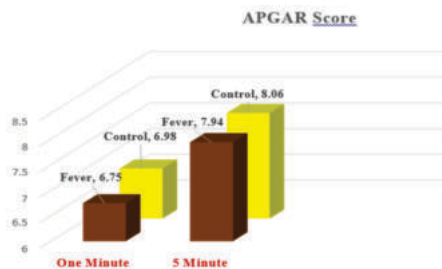


Figure-9: Relationship of APGAR Score with fever in Pregnancy

(Table 9, Figure-9), explains the Relationship of APGAR Score with pregnant mother with fever and without fever. The mean APGAR score for One minute was 6.75 ± 0.54 and for control 6.98 ± 0.46 it was found to be statistically significant (P value 0.0240). Regarding the APGAR Score for One minute was 7.94 ± 0.23 and for controls 8.06 ± 0.31. The association was found statistically significant (P value 0.0302).

Table 10: Correlation of Respiratory distress with fever in Pregnancy

Distress	Fever	Control	Chi Square test
Present	4 (8%)	1 (2%)	P value = 0.1688
Absent	46 (92%)	49 (98%)	

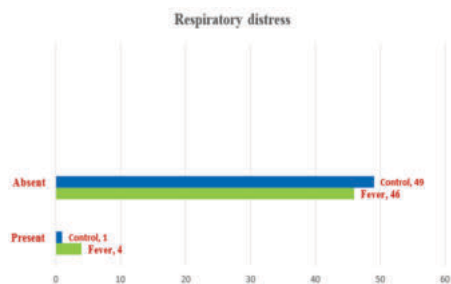


Figure- 10 : Correlation of Respiratory distress with fever in Pregnancy

(Table 10, Figure 10) explains the Correlation of Respiratory distress with pregnant mother with fever and without fever. Among the 50 pregnant women with fever had 4 (8%) had respiratory distress and only case from the control experienced respiratory distress. The association was found statistically insignificant (p value 0.1688).

Table 11: Association of NICU Admission with fever in Pregnancy

NICU Admission	Fever	Control	Chi Square test
Required	44 (88%)	22 (44%)	p-value = <0.0001
Not Required	6 (12%)	28 (56%)	

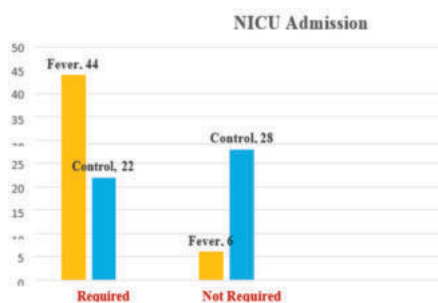


Figure- 11: Association of NICU Admission with fever in Pregnancy

(Table 11, Figure 11) explains the Association of NICU admission among the 50 pregnant women with fever was 44 (88%) required NICU admission and 6 (12%) doesn't required NICU admission. Regarding 50 control, 22 (44%) required NICU admission and 28 (56%) doesn't required NICU admission. The association was found to be statistically very significant (p value <0.0001).

DISCUSSION

Fever during pregnancy is a common clinical condition around the world, and when it is worsened by infection, it poses a considerable risk to both the mother and the foetus. Pyrexia during pregnancy might be difficult to manage because of its unusual symptoms. Because of the loss in maternal immune function, the strongest antibiotics must be administered with caution in pregnant women, due to the teratogenic risk.

In our study, most of them had due to respiratory infections 24 (48%), followed by Urinary tract infection 18 (36%), Typhoid 3 (6%) and Others 5 (10%).

In our study of 50 fever cases, 24% cases were Previous LSCS cases, 44% cases went into spontaneous labour, only 32% cases required induction. Out of 32% cases induced, 50% cases were delivered vaginally and 50% Cases underwent caeserean sections. So, Fever did not significantly affect onset of labour and the mode of delivery.

Among the pregnant women with fever IUGR was slightly higher (16%) than the non-fever pregnant women. Though it's statistically insignificant (0.0627).

In the present study 16% had IUGR and in control only 6% had IUGR. Among the pregnant women with fever IUGR was slightly higher than the non-fever pregnant women. Though it's statistically insignificant (0.0627). According to Lieberman et al, there is a substantial link between intrapartum fever and a low Apgar score. In our study the mean APGAR score for One minute was 6.75 ± 0.54 and for control 6.98 ± 0.46 it was found to be statistically significant (P value 0.0240). Nath J et al found low APGAR score (<7) in 18.6% cases. However, Biswas J and associates found a higher proportion of cases, i.e. 44.8% with similar low APGAR scores.

In our study 15% had Low birth weight among the pregnant women with fever. Low birth weight was the most common foetal result (56.8%), followed by pre-term birth, according to Biswas J et al. IUDs are used in 36 percent of cases, IUGR in 30% of cases, and stillbirth in 2.1 percent of cases (1.4 percent). Nath J et al found almost identical results, with 52.6 percent low birth weight cases, 27.8 percent preterm deliveries, 20.3 percent IUGR, 5% stillbirths, and 2.8 percent IUDs. Preterm labour was found to be 33 percent in a study conducted by Zeeman et al, and 28 percent in a study conducted by Chambers CD et al. Cotch and colleagues discovered that women with chorioamnionitis had a higher rate of premature labour in their neonates (30 percent).

In this study, 50% clear Liquor and other half had Meconium stained liquor. The association was found to be statistically significant (p value 0.0412). Pregnant women with fever, 32% had Gestational Hypertension, 16% had Anaemia and only 8% had Pedal oedema. The association was found to be statistically significant (p value < 0.0001). Only 8% had maternal complications such as Postpartum haemorrhage. In this study, 8% of the newborn had respiratory distress and 88% required NICU admission.

CONCLUSION :

Most common cause of fever in pregnancy was respiratory tract infections. Urinary tract infection was the second common cause. Pregnant women with fever 24% had

Hypotension and 56% had Tachycardia. Pregnant women with fever had almost half the delivery with meconium stained significantly. Among 50 delivered fever mothers, 24% cases were Previous LSCS cases, 44% cases went into spontaneous labour, only 32% cases induced. Out of 32% cases induced, 50% cases were delivered vaginally and 50% Cases underwent caesarean sections. So, Fever did not significantly affect labour onset and the mode of delivery.

Significantly NICU admission was required among the fever cohorts. This study was conducted in a full year to cover all seasons, since many febrile illness are seasonal, coverage of full year remove this bias and it reflects the true incidence of various causes of fever.

The current COVID-19 pandemic demonstrates performing a rapid diagnosis in pregnant women presenting with fever allow for appropriate care including Hospitalization, Out patient management and prescribing antibiotics.

Fever during pregnancy is a common occurrence that can lead to a wide range of issues for both the mother and the foetus and newborn. Because the most prevalent causes of fever are preventable, there has to be a greater emphasis on the importance of being aware of how to avoid such illnesses in order to avoid life-threatening foeto-maternal consequences. Early diagnosis and therapy can be aided by simple laboratory testing. Standard infection control procedures in homes, communities, and healthcare settings, as well as increased health education and awareness, will go a long way toward reducing such negative foeto-maternal effects.

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